**Readme**

**DEMO\_ARGE3\_4RMC\_Operation-modes**

A picture containing indoor

Description automatically generated

Keywords

TBEN-LL-4RMC-4DIP-4DXP, ARGEE Demo

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# General information

## Revision history and changes

|  |  |  |
| --- | --- | --- |
| Revision | Date | Changes |
| 1.05 | 01.04.2022 | Initial version external release |

## Project information

|  |  |
| --- | --- |
| Topics | Data |
| Name of the sample project : | ARGEE Demo for TBEN-LL-4RMC-4DIP-4DXP |
| Short description / Target definition : | to control up to 4 roller drives connected to an TBEN-LL-4RMC-\* module with ARGEE |
| Category : | DEMO |

## Instructions for use

This sample project has been created with great care and is available to the USER free of charge. TURCK does not guarantee faultlessness, excludes all liability and warranty claims, which can be excluded by law and has no obligation to correct any errors. This example project has been tested to a limited extent and has been tested only for its functionality as described. Compliance with the applicable standards, regulations and guidelines as well as the responsibility for safety considerations and use of the sample project is subject to the USER.

## Range of validity

This sample project is based on the hardware and software of the respective manufacturers as well as on the associated documentation. Therefore, this example project only applies to the described installation. New hardware and software versions may require modified handling. Please see the detailed description in the respective manuals.

# Reference Material

## Hardware

List of used Hardware and their firmware versions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vendor | Part no. | Type | Description | Comment | Quantity |
| Turck | 100018352 | TBEN-LL-4RMC-4DIP-4DXP | Control of up to 48 V roller motors with additional digital signal processing | FW v1.0.0.0 | 1 |
| Interroll |  | Interroll EC5000 BI rollerdrive | EC5000 rollerdrive with CAN interface (BI) |  | 1-4 |
|  |  | Power supply | According to the used rollerdrive. | e.g. –PSU67-11-2480/M | 1 |
| Turck | 6634924 | PKG4.5S-2-RSW4.5T/TEL | Actuator and Sensor Cable, PVC  M12, M8, 2 m | For connection of Interroll EC5000 rollerdrives  Available also in other lengths: PKG4.5S-**\***-RSW4.5T/TEL | 1-4 |
| Turck | 6625212 | RKC4.5T-2-RSC4.5T/TEL | Actuator and Sensor Cable, PVC  M12, M12, 2 m | Available also in other lengths: RKC4.5T-**\***-RSC4.5T/TEL | 3 (4) |
| Turck | 6441631 | RSSD-RJ45S-4416-2M | Industrial Ethernet/PROFINET Cable,  M12 D-coded, RJ45, 2 m | Available also in other lengths: RSSD-RJ45S-4416-**\***M | 1 |
| Turck | 100003327 | RKP56PLB-2-RSP56PLB/TXG | M12 Power Cable – M12 L-coded, 2 m | Available also in other lengths: RKP56PLB-**\***-RSP56PLB/TXG | 1 |
|  |  |  |  |  |  |
| Turck | 3096518 | K30 Touch button |  | K30APT2GREQ | 3 |
| Turck | 3096518 | K30 Touch button |  | Optional, for motor selection | optional |

## Software

|  |  |  |  |
| --- | --- | --- | --- |
| Vendor | Type | Revision | Comment |
| Turck | ARGEE | V 3.2.21900 |  |

# Example Application (Demo)

## Configuration

Diagram, schematic

Description automatically generated

At first startup, the module is configured for one motor connected to connector X4.

## Description of the function

This demo program gives an example on how to control up to 4 roller drives connected to an TBEN-LL-4RMC-\* module with ARGEE.

Also, basic control options via either hardware controls or with ARGEEs included HMI are shown.

## Operation Manual

The default mode is “velocity”.

The first rising edge on the “Plus” touch button will start the motor with a 50mm/s speed.

Each rising edge on the “Plus” touch button will increase the speed with 50 mm/s, each rising edge on the “Minus” sensor will decrease the speed with 50 mm/s.

A rising edge on the “Mode Select” touch button will toggle the motor between “velocity“ and “Position” mode. In position mode output5 will be ON (Indication light of the “Mode select” K30) A rising edge in the “Plus” sensor will initiate one clockwise rotation. A rising edge on the “Minus” sensor will initiate one counterclockwise rotation.

If more than one motor is connected, a rising edge on the “Motor select” button will select the next motor. On a motor select Output7 (Indication light of the “Motor select” K30) will blink 1,2,3 or 4 times, depending on the newly selected motor.

Before additional motors can be used, they have to be selected in the “Setup” screen ARGEE HMI. (*ip-address*/hmi.html)

### HMI (*ip-address*/hmi.html)

Timeline

Description automatically generated

The left column of the screen shows the current values of the Motor indicated by the dark gray button of the screen selection bar. (Motor1 in the above screenshot) The right column allows to operate the motor.

Note: The control via the HMI is not related to the control using the sensors and the selection buttons. The last “command” gets executed. The motor selected in the HMI is not linked to the motor selected using the “Motor Select” button. The HMI can control one motor while simultaneously the sensors control another.

In order to use more than one motor, those motors need to be activated in the “Setup” screen. This configuration is kept in the remanent memory.

Table

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# Appendix – understanding the ARGEE program

### Motor\_st

For each motor The ARGEE program keeps a Motor structure in memory. These motor structures are declared as an array of 5 function blocks in the main task. (Instance 0 is not used in order to make M[1] correspond to motor1).

Table

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The structure consists of input variables (actX*xx*), output variables (cmdX*xx*) and a few help variables connected to buttons on the HMI screen and to rising edge triggers

The *IO\_task* updates the motor\_st with the device input data from the module slots and sets the module’s output with the data from the motor structure

### Main\_Task

In the first cycle after startup the main task retrieves the attachment bit from the retentive memory and sets the default values for all 4 motors.

Table

Description automatically generatedAfter this first cycle, the main task set the mode indicator according to the selected motor and monitors the different sensors to perform the related actions.

Bar chart

Description automatically generated with low confidence

### HMI\_Task

The HMI task handles the actions trigged by the buttons on the HMI screens.

A picture containing timeline

Description automatically generated

### Rst\_cmd\_tsk

The motors respond to the rising edge of a command bit. This task monitors the command bits and resets them after the command was executed.

Graphical user interface, text, application, email

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More details can be found in comment statements in the ARGEE project source.